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Federal Communications Commission  
Office of the Secretary

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Office of the Secretary  
Federal Communications Commission  
1919 M Street, NW  
Washington, DC 20554

23 December 1991

RE: MM No.87-268

Dear Sirs:

Owing to clerical error, I sent you uncorrected copies of text in the above matter which contained a few spelling errors.

Please find enclosed fifteen copies with the few typographical errors corrected. No changes to the wording have been made, should these be able to be circulated to the Chairman and Commissioners.

Thanking you for your understanding,



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enc.

KENNETH L. PHILLIPS

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DEC 26 1991

FEDERAL SECTION

Before the

**FEDERAL COMMUNICATIONS COMMISSION**

Federal Communications Commission  
Office of the Secretary

**WASHINGTON, D.C.**

DEC 26 1991

**In the Matter of  
Advanced Television Systems and  
Their Impact upon the  
Existing Television Broadcast Service**

**MM Docket No. 87-268  
Notice of Proposed Rulemaking**

***Comments of***

**Prof. Kenneth L. Phillips  
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## Introduction

Although the subject of the instant proceeding has long been considered to be of primary concern to the Broadcast Industry, and therefore docketed as a Mass Media matter, the purpose of this submission is to direct the Commission's attention to a series of policy implications which in light of recent and momentous changes in the overall telecommunications landscape, shall effect all Americans and potentially, the ability of certain large telecommunications users to distribute advanced information and entertainment services at costs far below current levels.

The comparative merits of various formats, processing techniques, and modulation schemes in detail, will be left for later submissions. At this juncture, it is vitally important that the Commission fully appreciate that the traditional boundaries which have historically existed between variously regulated entities known as "broadcasters," "telephone companies," "cable operators," "the entertainment industry," and "information providers/services," are quickly dissolving and are already nearly legal fictions. Accordingly, policy and technology decisions made without a similarly interdisciplinary vision of the future could by necessity, not only favor one of these competing sectors, but both deprive the American public of key opportunities to participate in the Information Age in the most broadly affordable manner, and further jeopardize the United State's role as a leading worldwide provider of future entertainment hardware and

As one of the founding authors of the Committee on Open High Resolution Systems, I have already extolled the virtues of guidelines leading to implementations characterized by Interoperability, Extensibility and Scalability in the Advanced Television arena. While no further definition of these terms is required at this point, it is important to make explicit the tacit implication that such Advanced Television formats and technologies will come online in an environment characterized by open architectures of multi-media devices and not simply the stand alone television receiver found in well over 93% of all American homes today.

#### The Digital Debate

While interoperability is not guaranteed by digital transmission alone, any more than analog transmission absolutely precludes it, there can be no doubt that the open architecture, multimedia telecommunications devices of the future will exist in a totally digital processing environment. While vertical compatibility with the existing base of analog receivers is desirable, if not essential in the near term, and while impressive progress is being made in both variable and fixed rate video compression algorithms, a path must be left open for the development of a North American migration strategy to the digital domains of the future. Just as today the roles in the information and entertainment marketplaces are becoming interchangeable between broadcasters, movie production companies, telephone companies (both inter-LATA and

local exchange,) financial institutions, and software producers, tomorrow will see days when the information ecology of both home and office will force the incorporation of telephones, televisions, photocopy, facsimile, audio, libraries, cellular/"pcn" technologies, etc. into small, integrated systems, much as took place in the "hi fi components" sector nearly two decades ago.

To invoke the "Law of the Excluded Middle" by interpreting the digital dilemma as a mutually exclusive, binary decision, will be injurious to providers on one or the other side of the technologies and ultimately, the consuming public.

#### Economics of Distribution

In the balance exists the comfort of the embedded infrastructure owned by the broadcast industry and the consuming public which must be weighted against the opportunity represented by the interactive effects on marginal costs should digital broadband signals become the economic backbone of SONET rate bit streams into the American home. For example, if it is assumed that each home presently owning a television set would support the delivery of such a SONET rate (>100 mb/sec.) channel for entertainment purposes, then the cost (to a Local Exchange Telephone Company) of providing incremental 56/64kb/s narrow band channels used for both basic voice telephony and narrow-band data/information services drop to within 3% of the backbone cost where each central office is running at 80% of subscriber loop capacity and the local loop

<3 miles.

In short, although others have correctly pointed out that the distribution of image-based information does not necessarily require synchronous fixed data rates of transmission and that indeed, optimal spectral efficiency may well best be achieved through the use of one or more of several variable bandwidth schemes, economic factors equating to direct societal benefits may ultimately dictate the use of an efficiently multiplexed multi-purpose channel into the home via one of several non-"over-the air" alternatives.

"Over the air" will not become extinct however, as it is important to note that while this trend is emerging on the technology front, spurred on by continued Congressional and Judicial relaxation in the Telephone Common Carrier and Cable sectors, new, high growth spectrum-based markets are clearly part of the event horizon. More specifically, Personal Communications Networks ("PCN"s) with the declining costs of miniature send/receive devices will augment the information ecologies of most homes and offices, by providing portable access to nodal processors distributing information and telecommunications services unlike any available today.

#### CONCLUSION

The Commission's concern with these issues as evidenced by this proceeding is both well placed and to be applauded. I look

forward to commenting further and in greater detail as the direction of thought on this subject becomes more clear. While not a spokesman of expertise within the field of broadcast television, I feel that the implications which advanced television, and related imaging technologies have for basic telecommunications services are so potentially great and beneficial, that not to address the cross disciplinary issues could lead to our premature foreclosure on many new avenues leading to the much-touted but difficult to finance, Information Age.

The undersigned, while having been Vice President of Telecommunications Policy for over 14 years at Citicorp, and of counsel to this and other organizations, as well as Chairman and Science Advisor to the CCTU, and Professor at New York University's Graduate Interactive Telecommunications Program, writes representing only his own views on this matter.

Respectfully submitted,



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December 19, 1991

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DEC 20 1991

Comments of Kenneth L. Phillips